FIG. 1

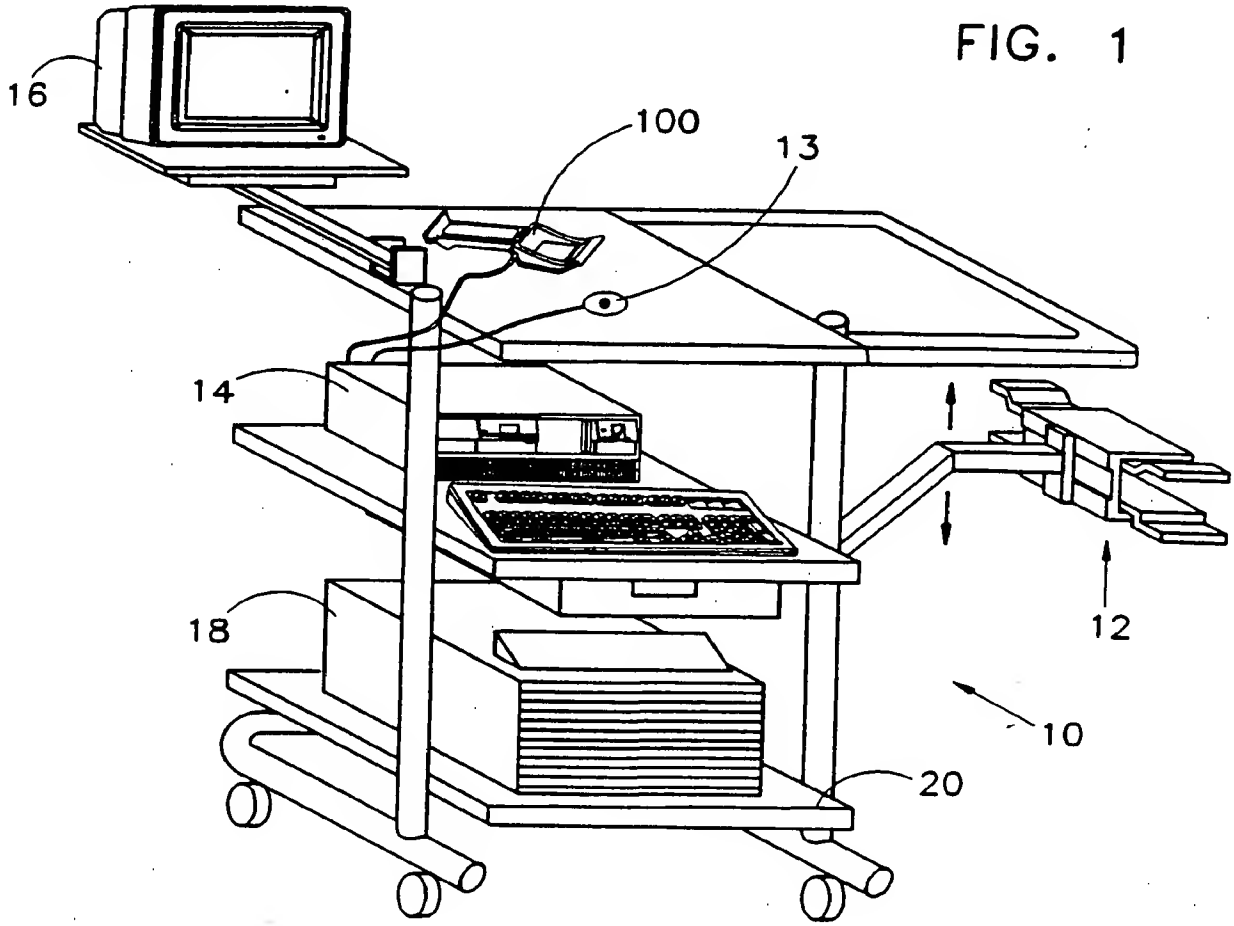


FIG. 2

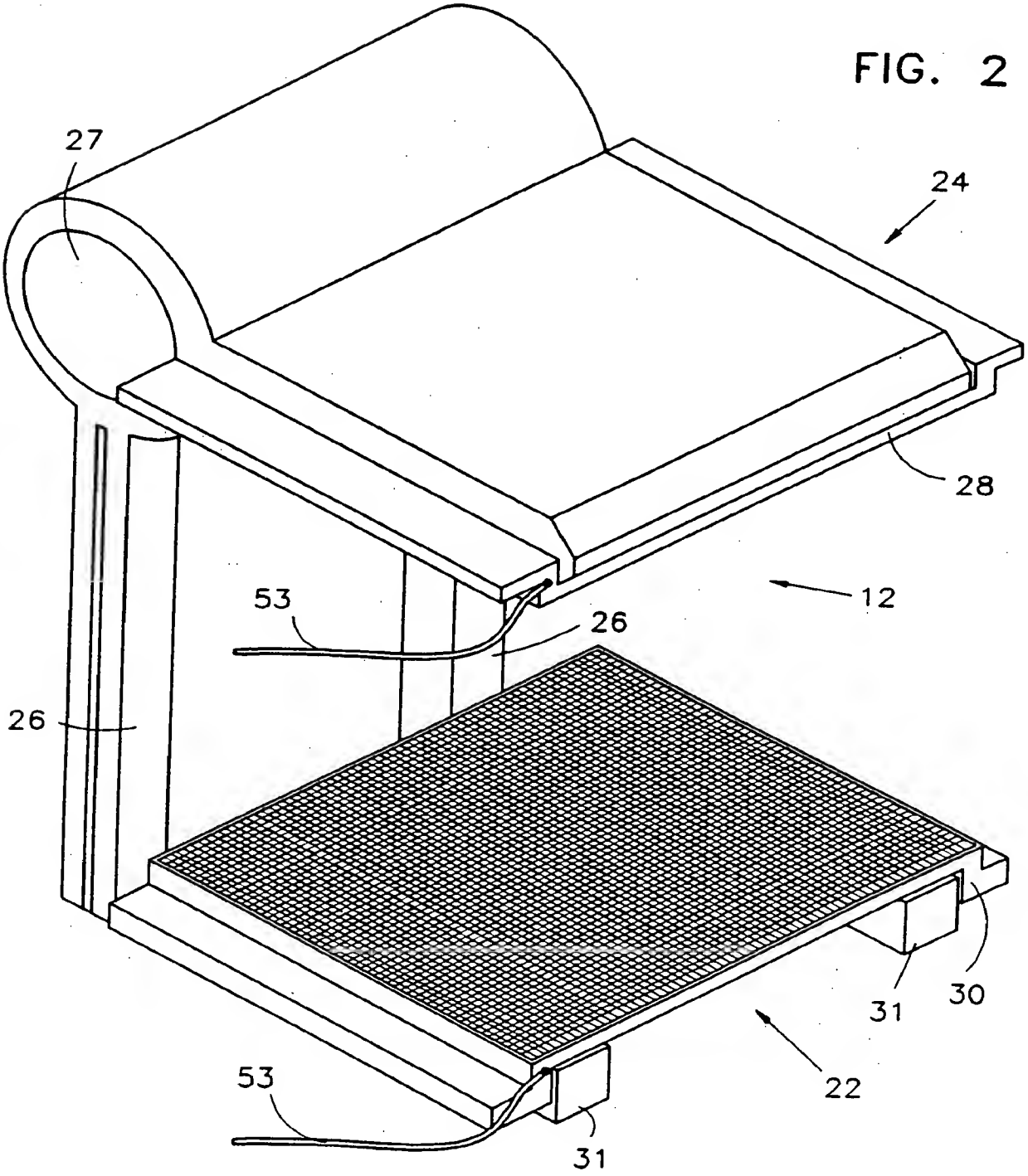


FIG. 3A

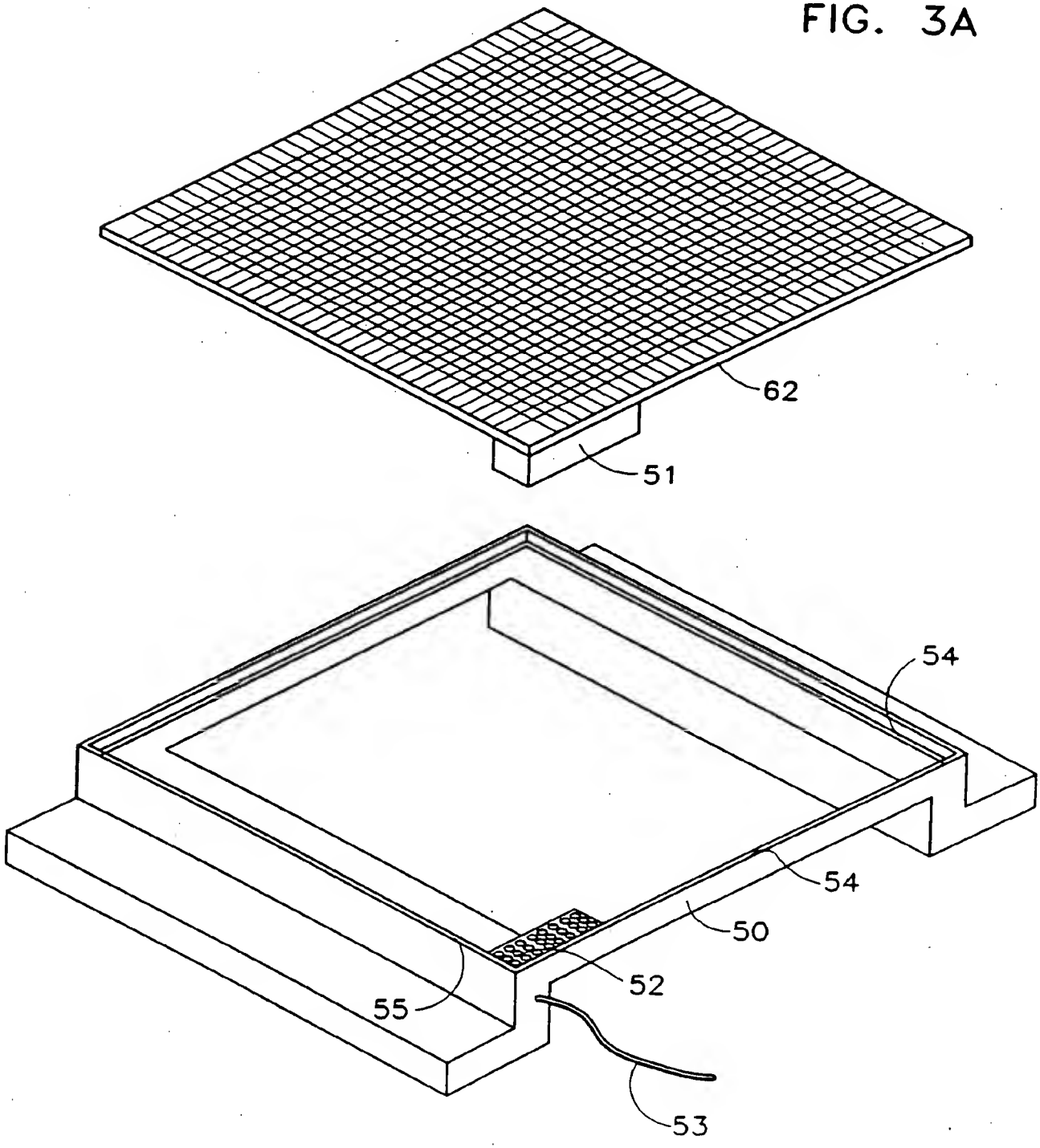


FIG. 3B

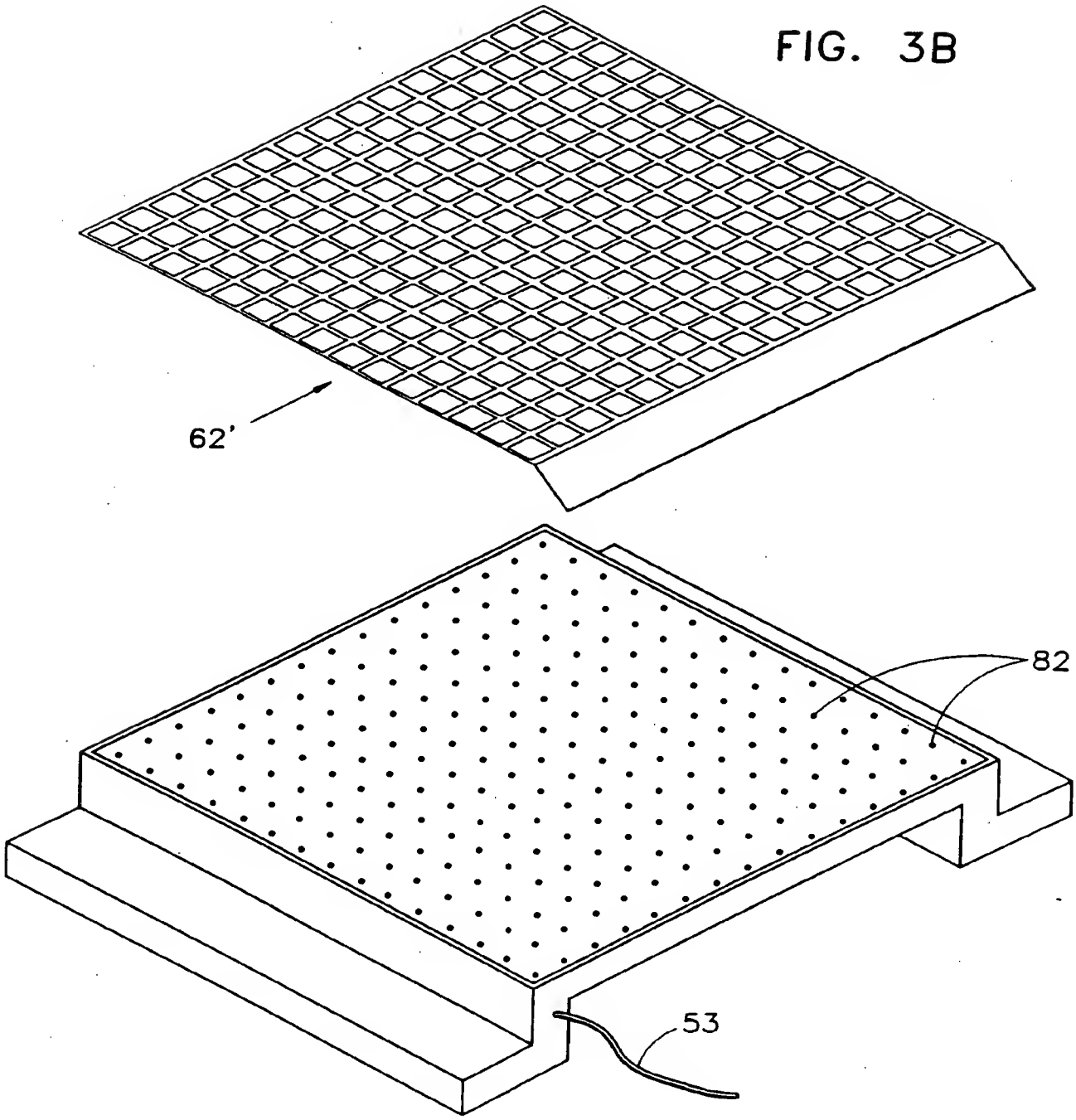
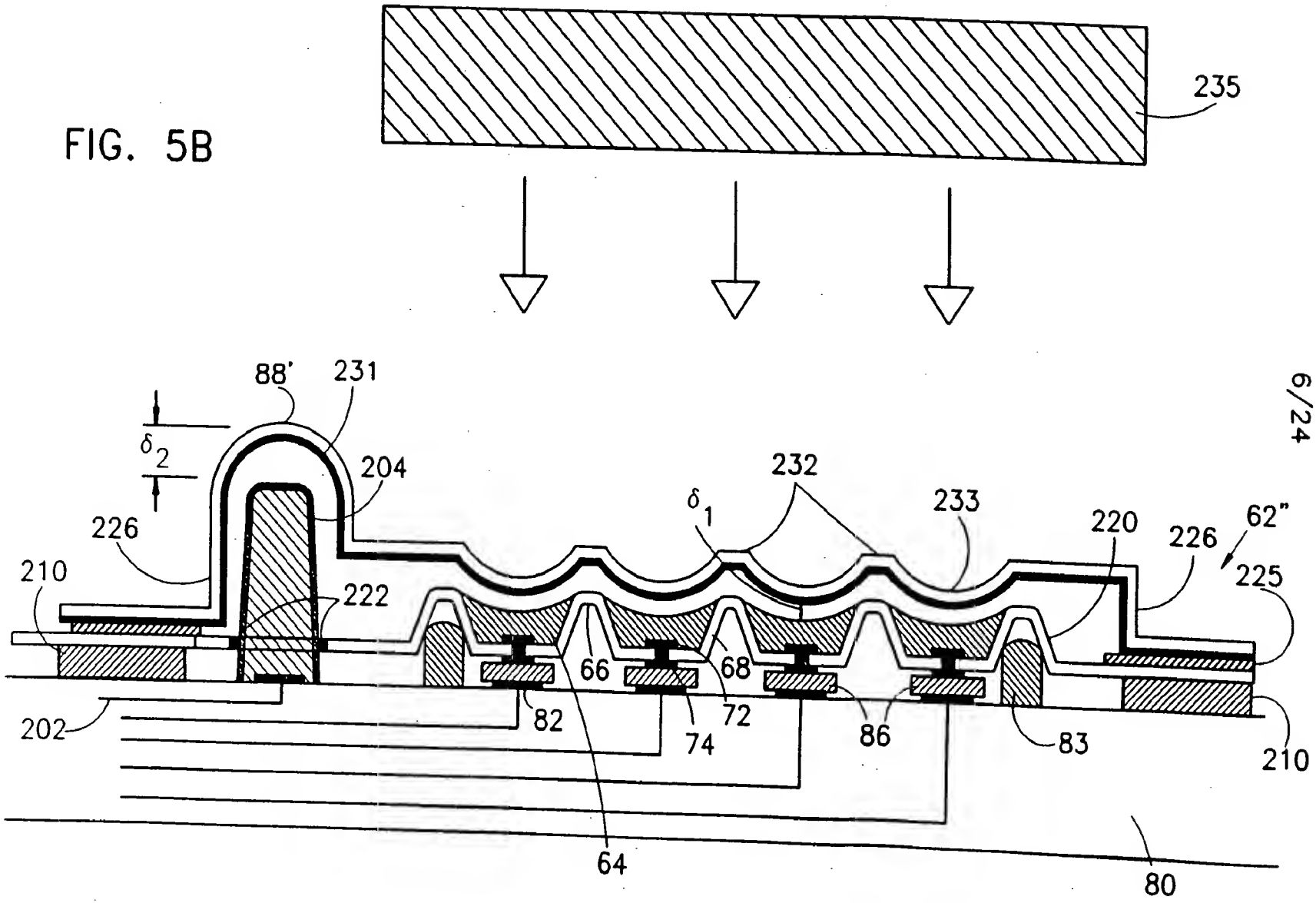


FIG. 5B


235
88'
231
δ_2
204
232
δ_1
233
220
226
62"
225
226
210
222
66
68
72
74
86
82
83
202
210
64
80

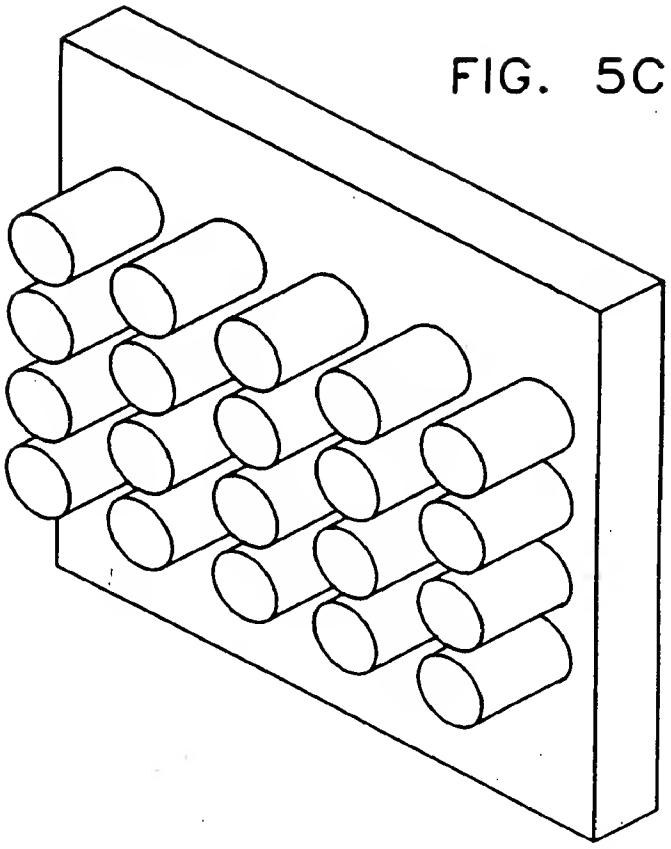


FIG. 5C

FIG. 6A

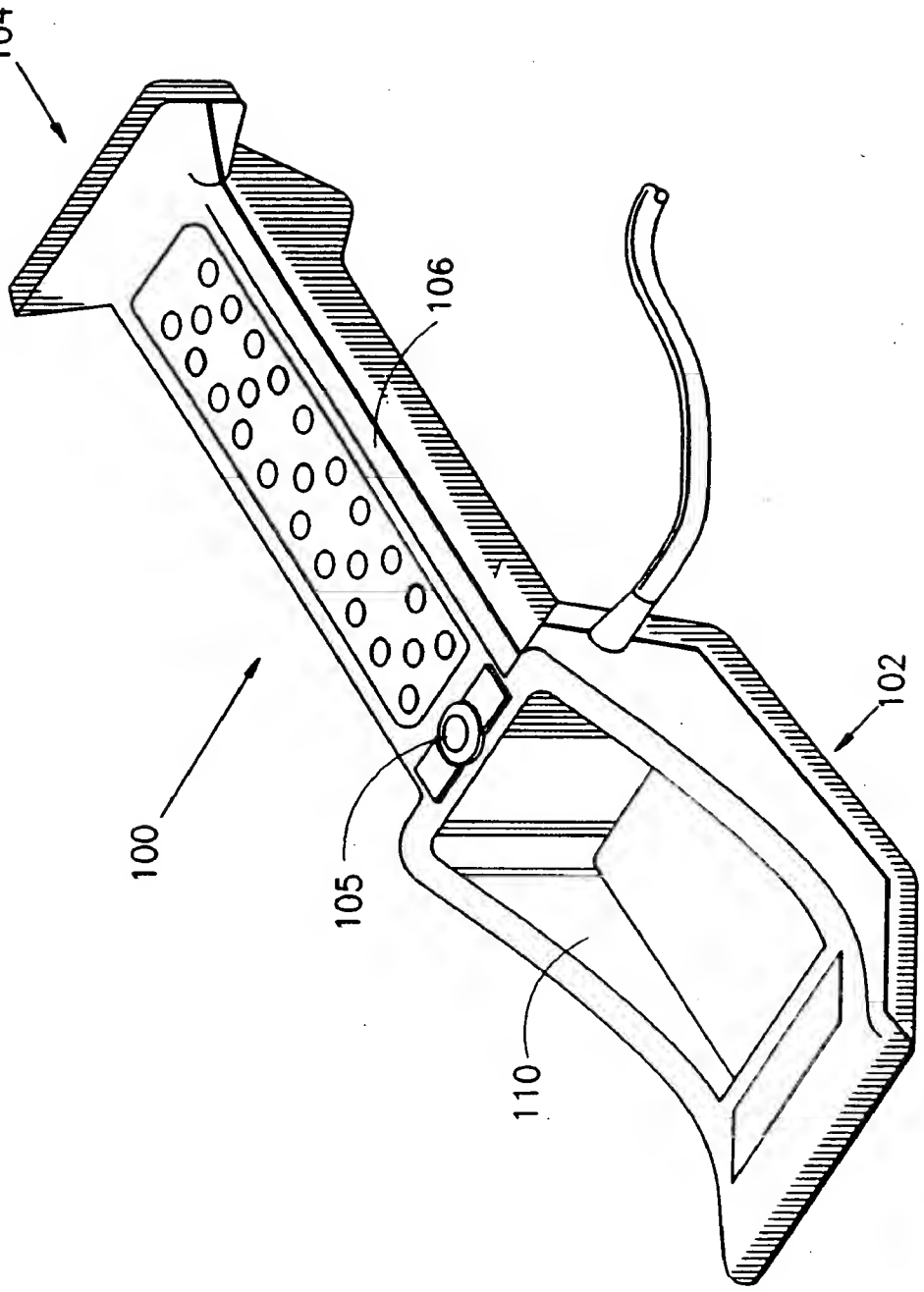


FIG. 6B

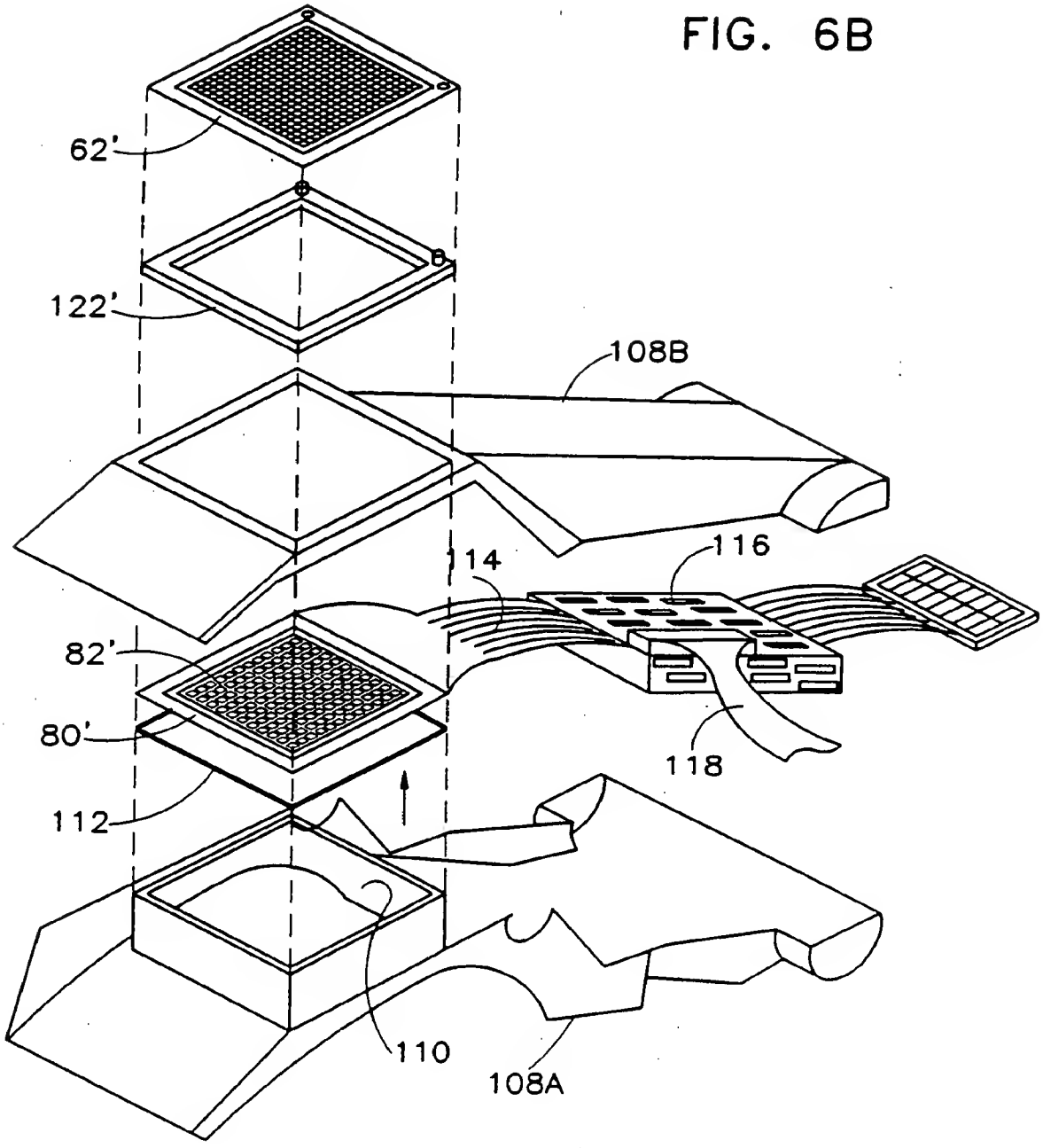


FIG. 7A

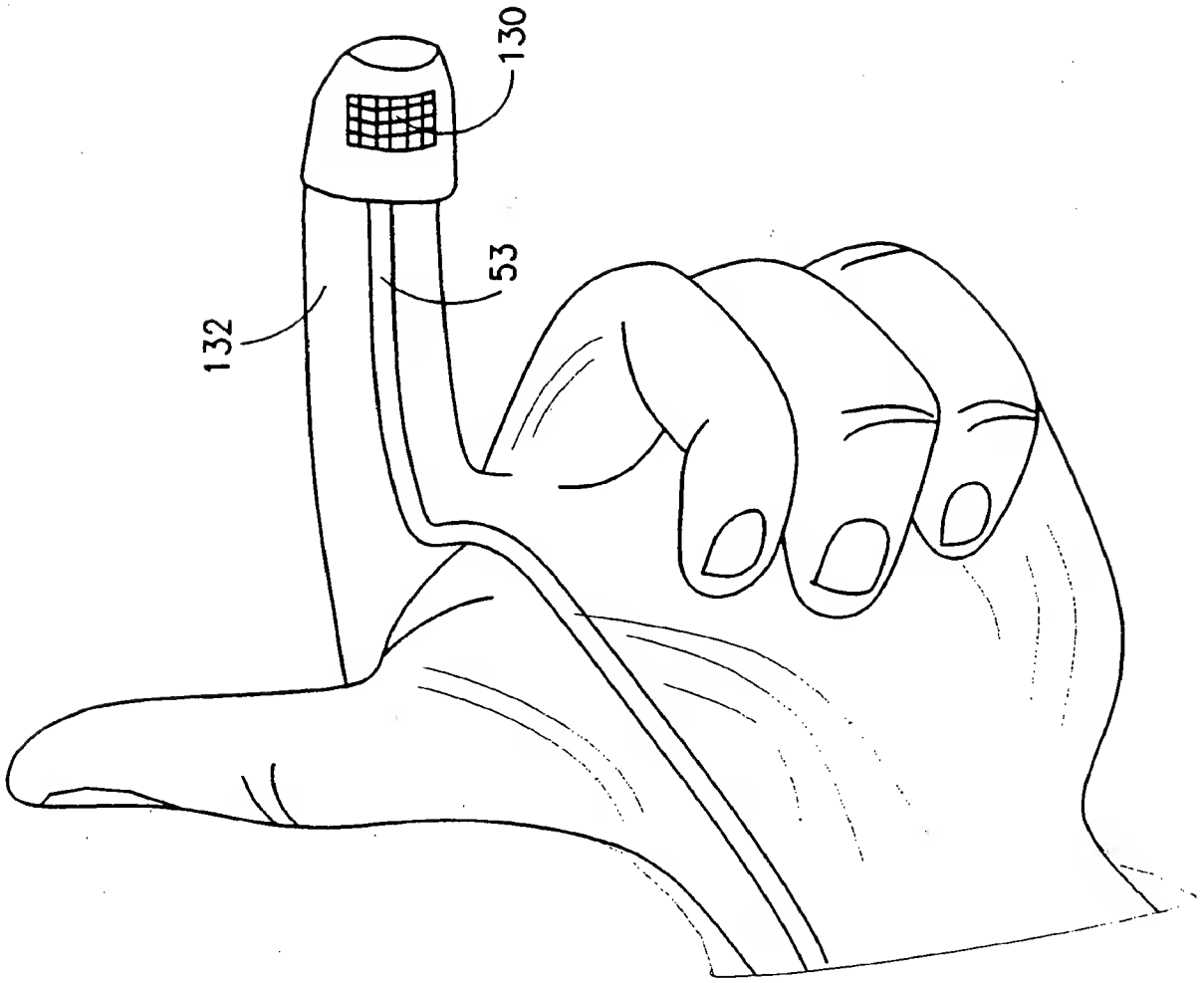


FIG. 7B

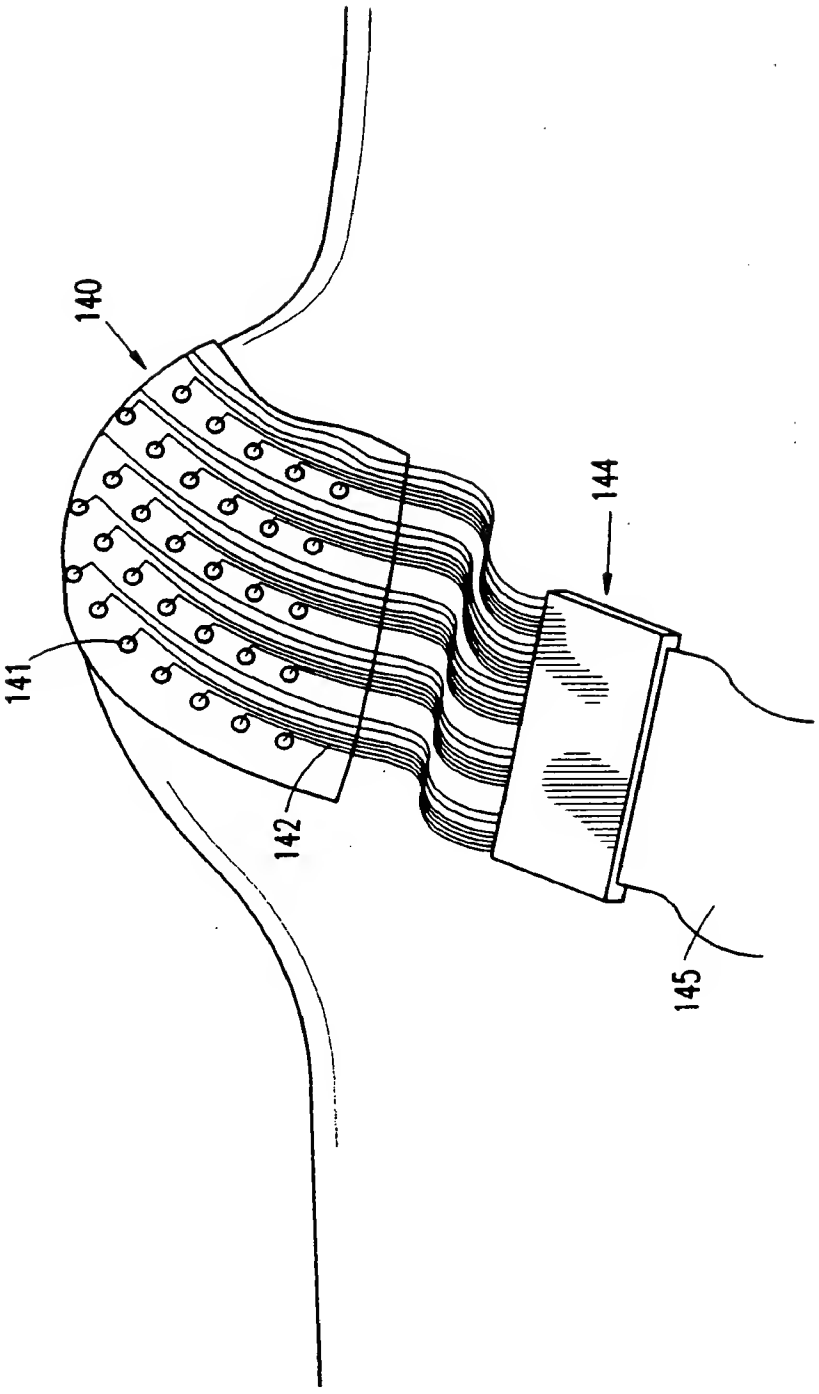


FIG. 10

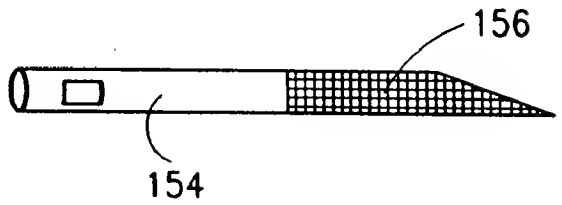


FIG. 8

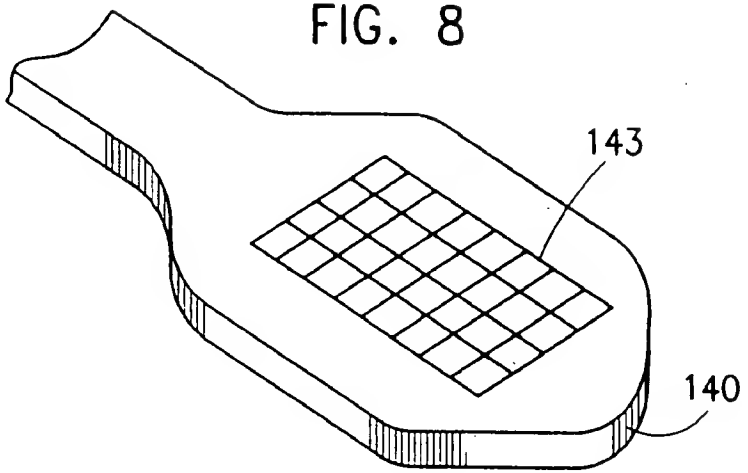


FIG. 9

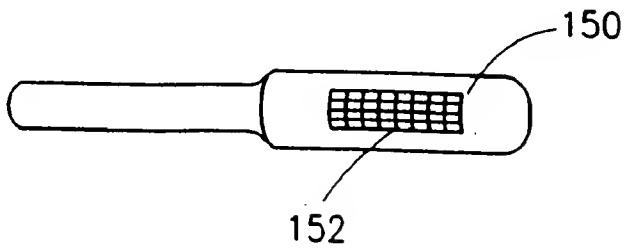


FIG. 11A

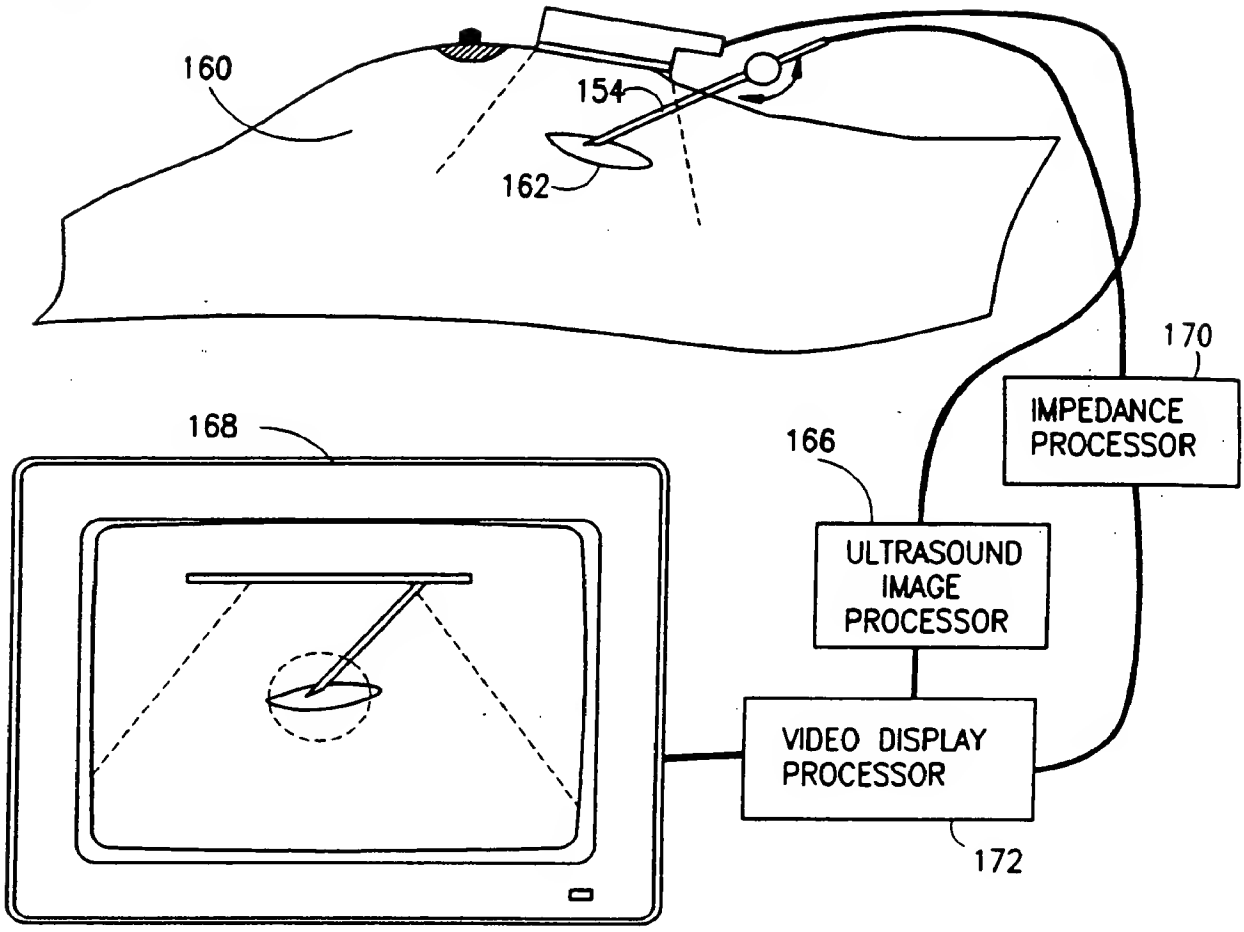
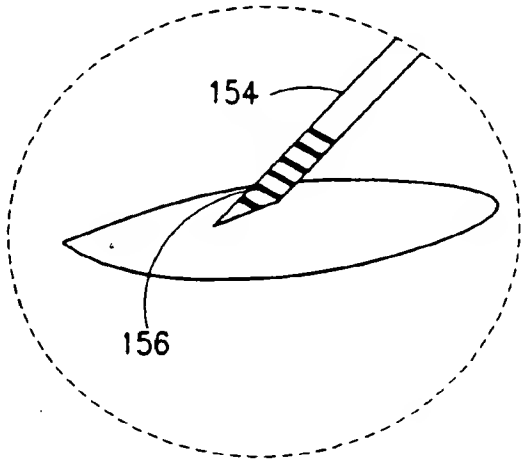


FIG. 11B



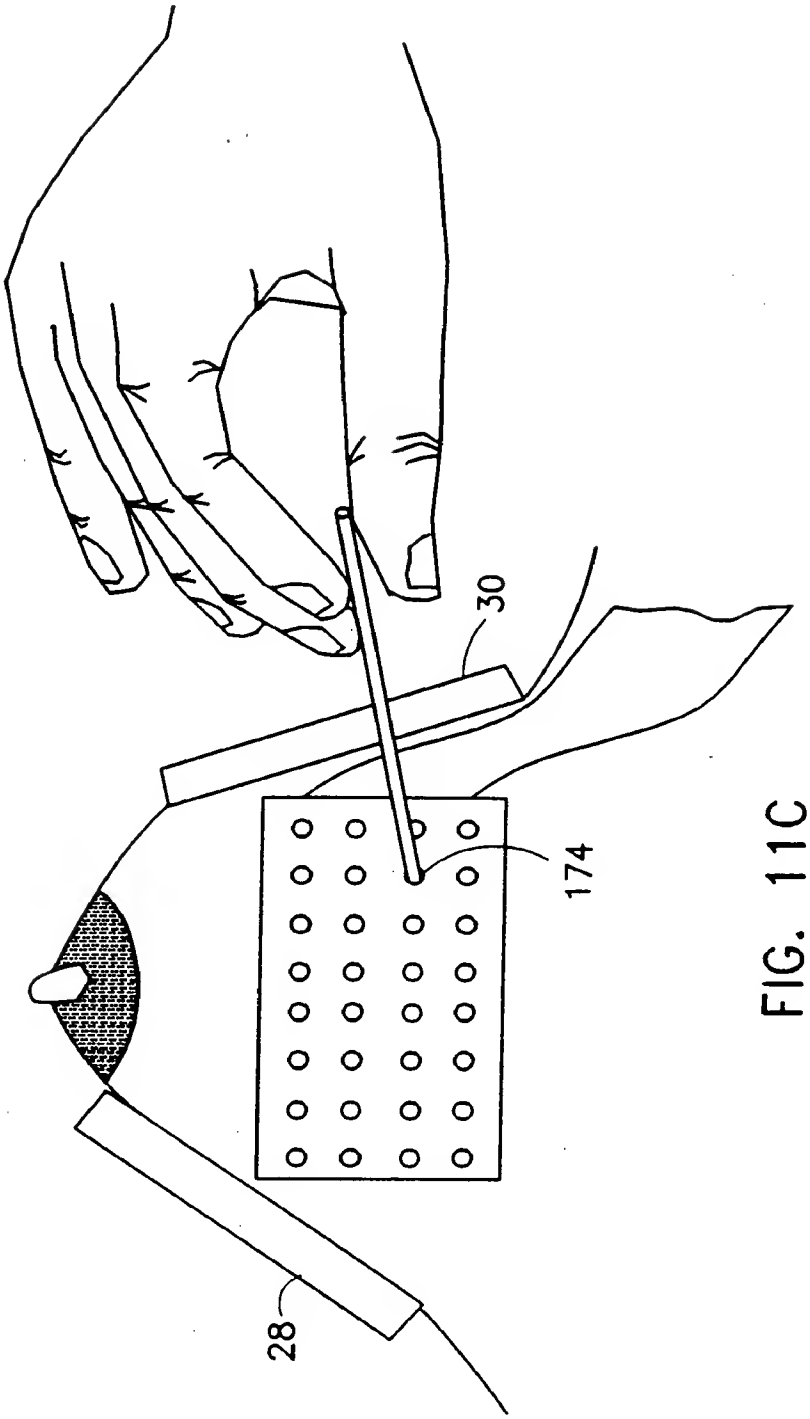


FIG. 11C

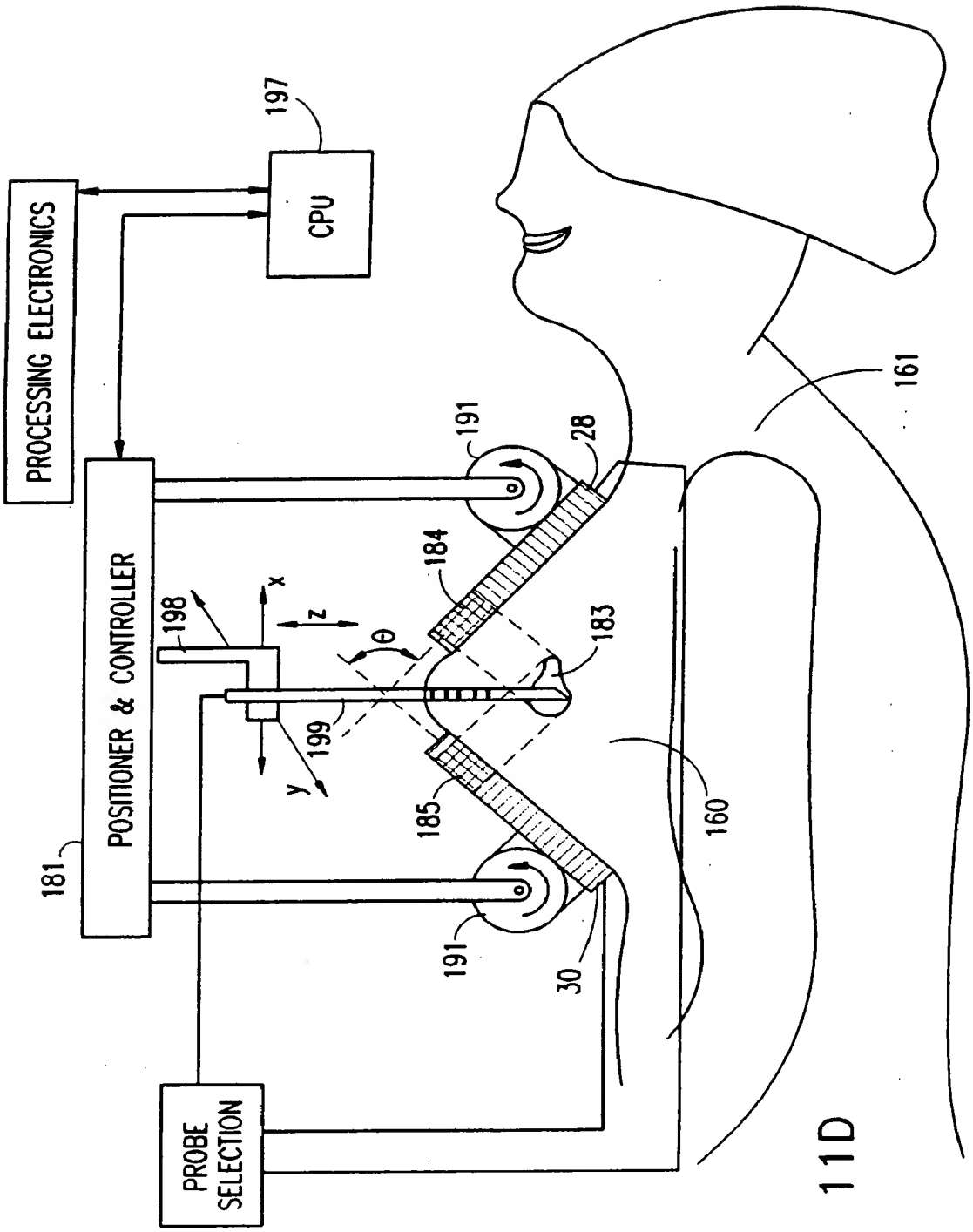

PROCESSING ELECTRONICS
CPU
197
POSITIONER & CONTROLLER
181
PROBE SELECTION
198
199
x
z
θ
y
184
183
185
191
191
28
30
160
161

FIG. 11D

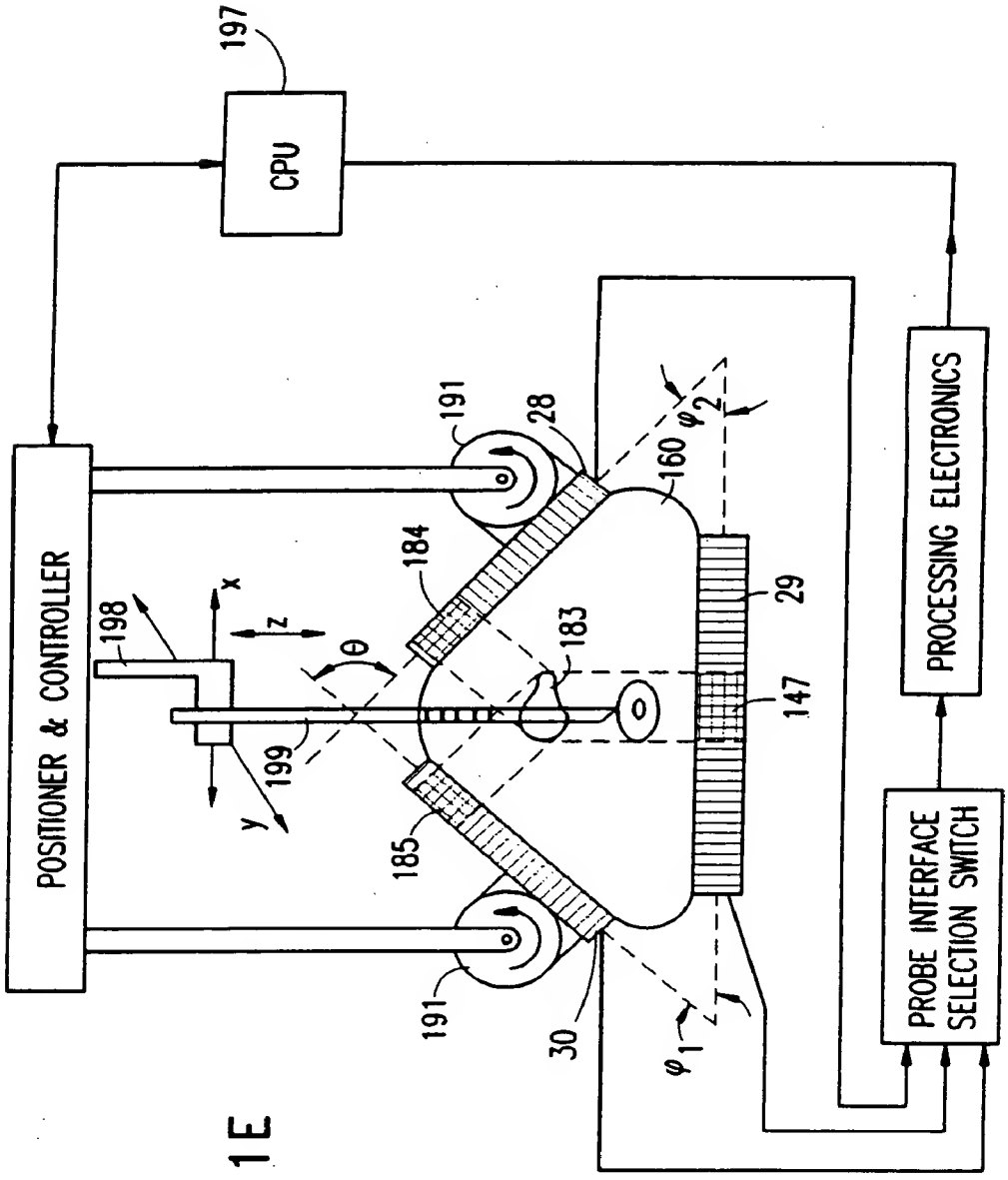

197
CPU
POSITIONER & CONTROLLER
PROCESSING ELECTRONICS
PROBE INTERFACE SELECTION SWITCH
191
28
160
φ_2
184
198
x
z
θ
183
29
147
199
y
185
191
30
φ_1

FIG. 11E

FIG. 12

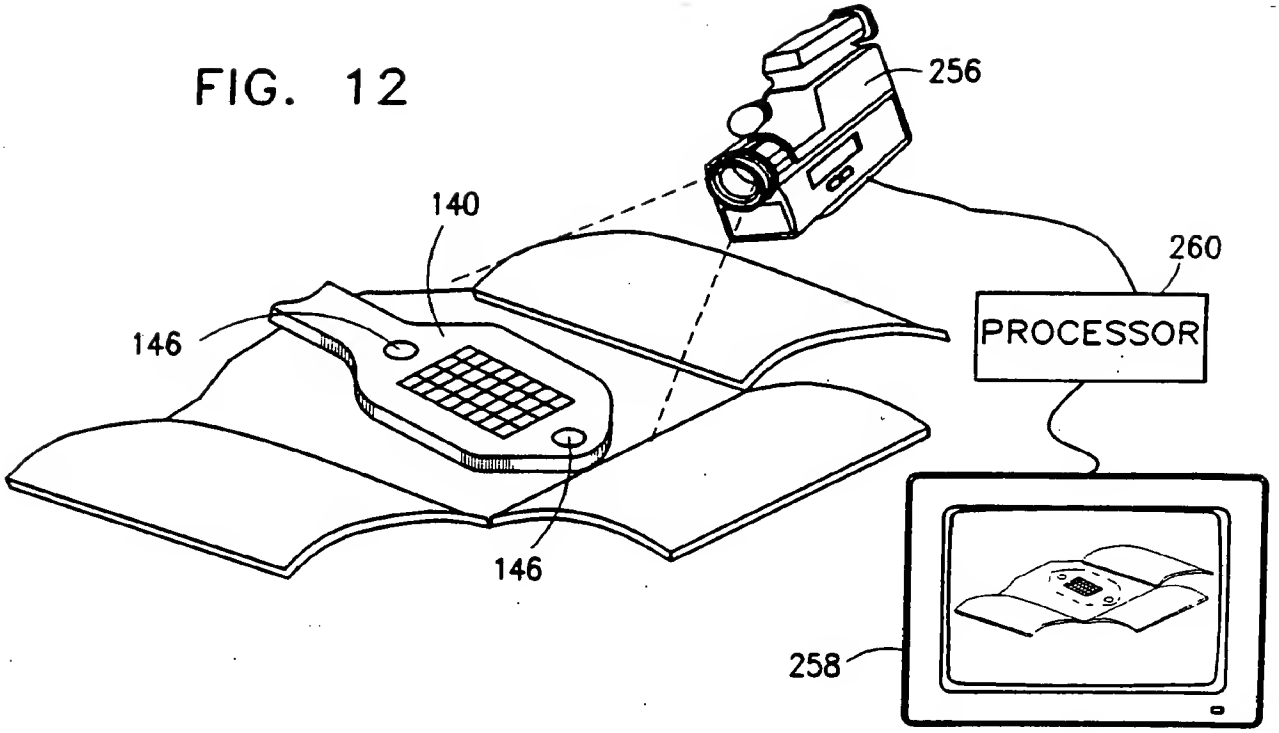
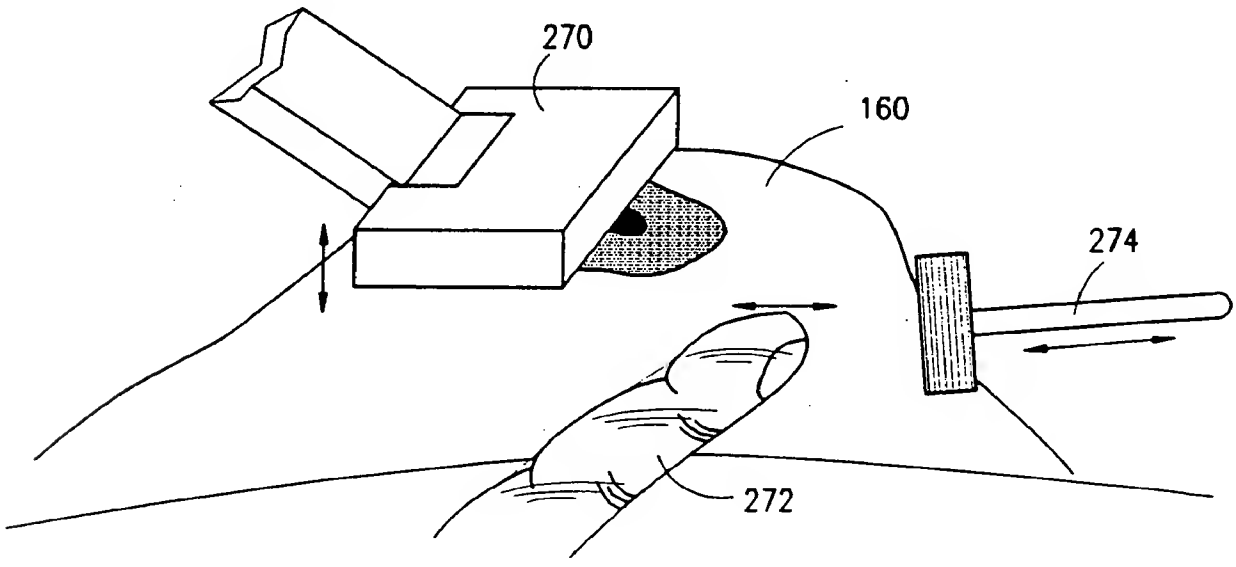


FIG. 16



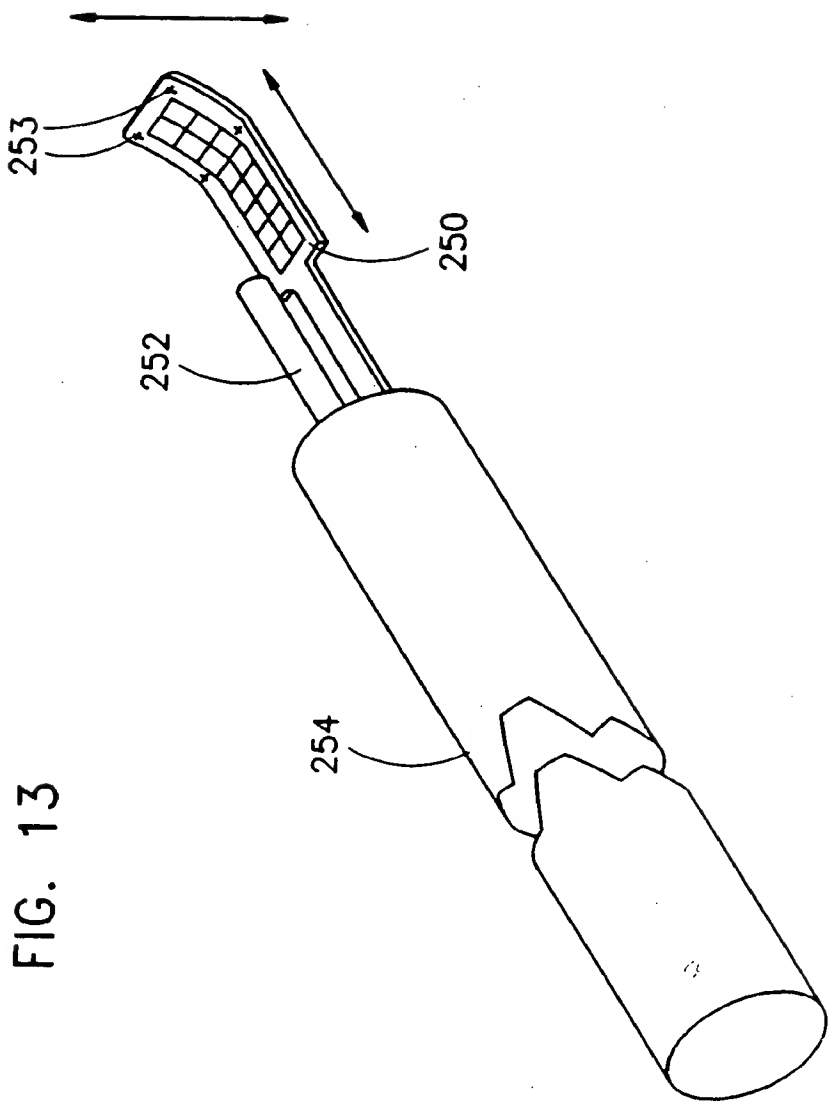


FIG. 13

FIG. 14

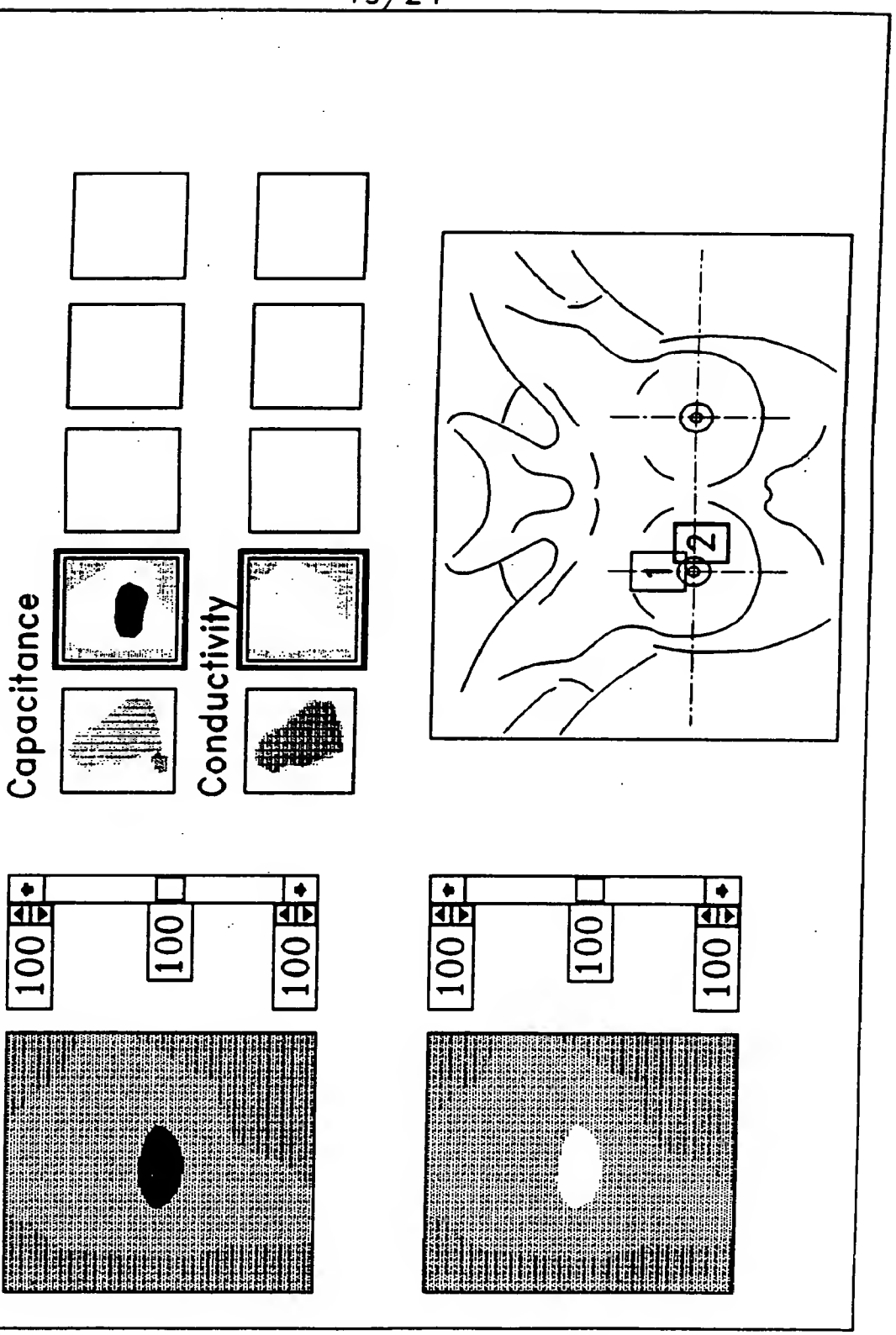
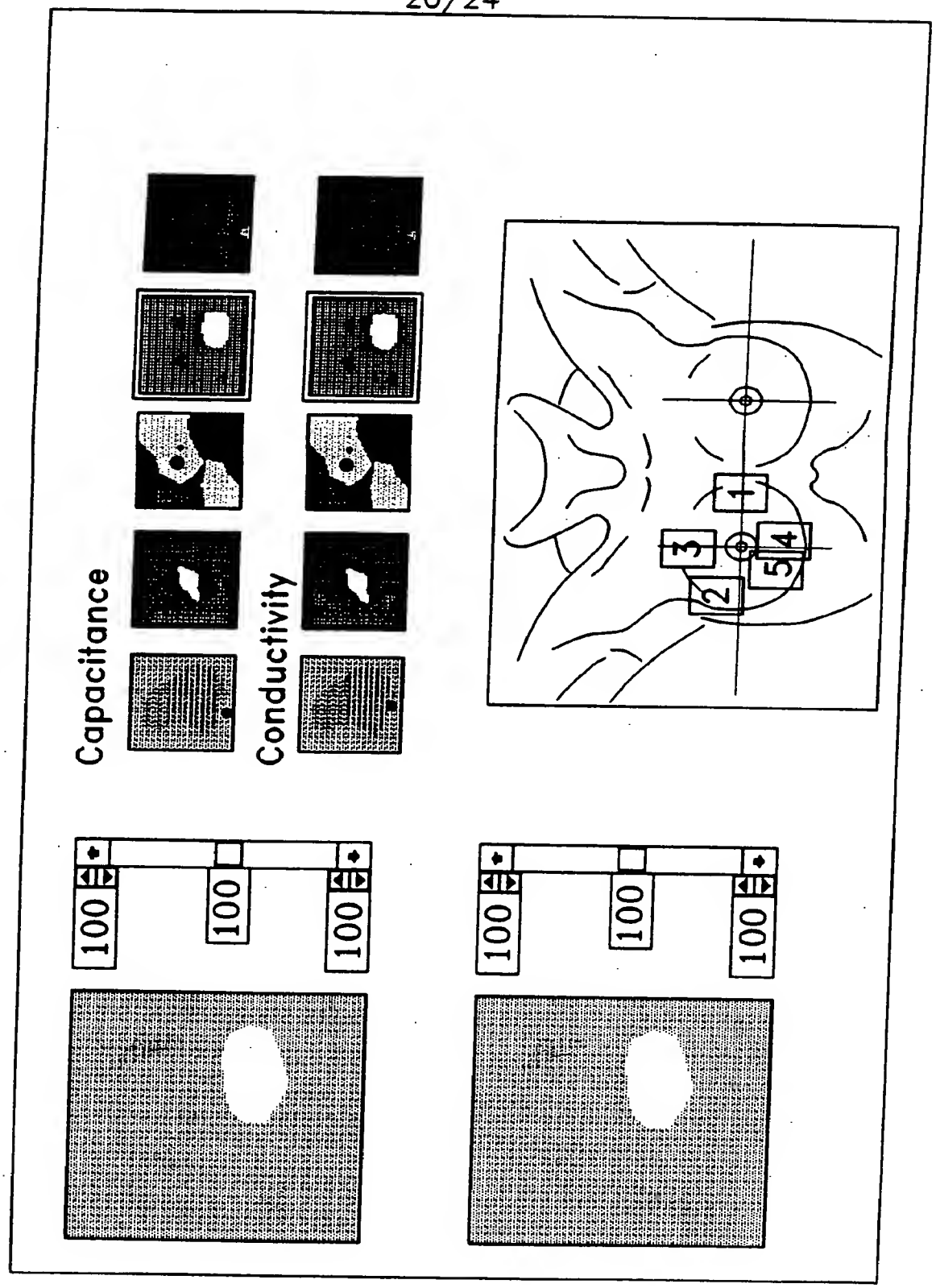


FIG. 15



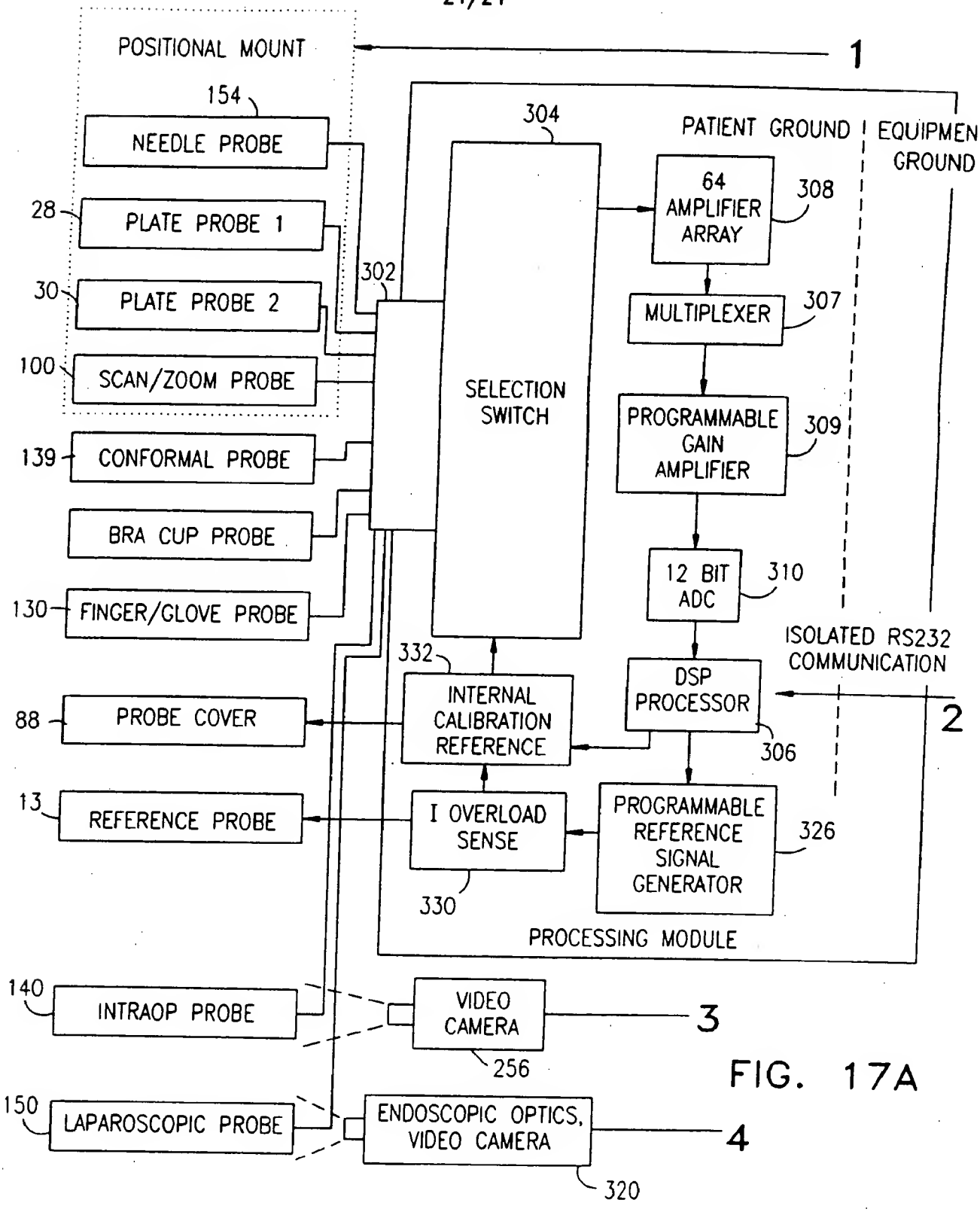

POSITIONAL MOUNT
1
154
NEEDLE PROBE
28
PLATE PROBE 1
30
PLATE PROBE 2
100
SCAN/ZOOM PROBE
139
CONFORMAL PROBE
BRA CUP PROBE
130
FINGER/GLOVE PROBE
88
PROBE COVER
13
REFERENCE PROBE
140
INTRAOP PROBE
150
LAPAROSCOPIC PROBE
302
304
SELECTION SWITCH
PATIENT GROUND
EQUIPMENT GROUND
64 AMPLIFIER ARRAY
308
MULTIPLEXER
307
PROGRAMMABLE GAIN AMPLIFIER
309
12 BIT ADC
310
ISOLATED RS232 COMMUNICATION
DSP PROCESSOR
2
306
332
INTERNAL CALIBRATION REFERENCE
I OVERLOAD SENSE
330
PROGRAMMABLE REFERENCE SIGNAL GENERATOR
326
PROCESSING MODULE
VIDEO CAMERA
3
256
ENDOSCOPIC OPTICS, VIDEO CAMERA
4
320

FIG. 17A

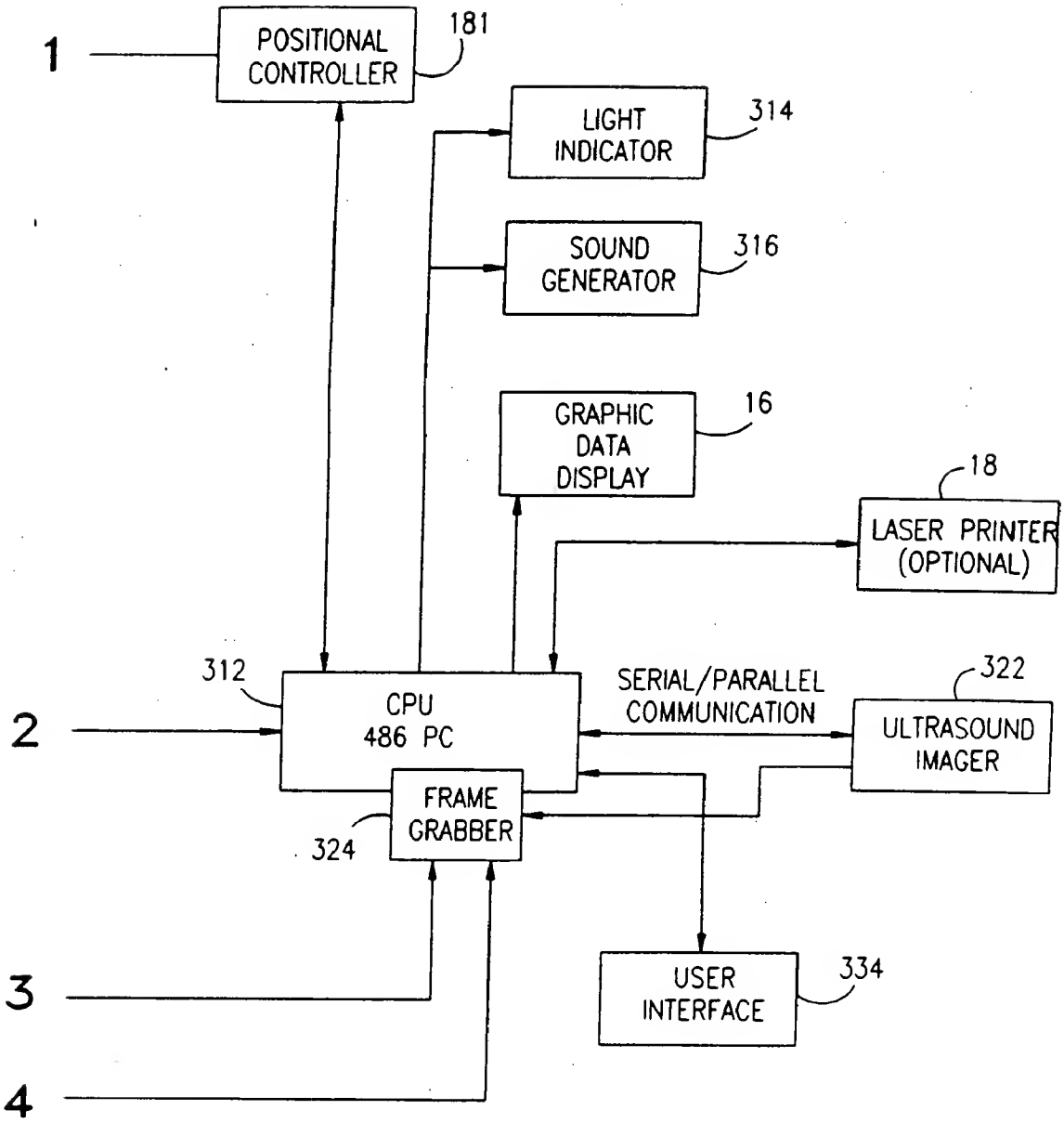

1
POSITIONAL CONTROLLER
181
LIGHT INDICATOR
314
SOUND GENERATOR
316
GRAPHIC DATA DISPLAY
16
18
LASER PRINTER (OPTIONAL)
312
CPU 486 PC
SERIAL/PARALLEL COMMUNICATION
322
ULTRASOUND IMAGER
2
FRAME GRABBER
324
3
USER INTERFACE
334
4

FIG. 17B

FIG. 18A

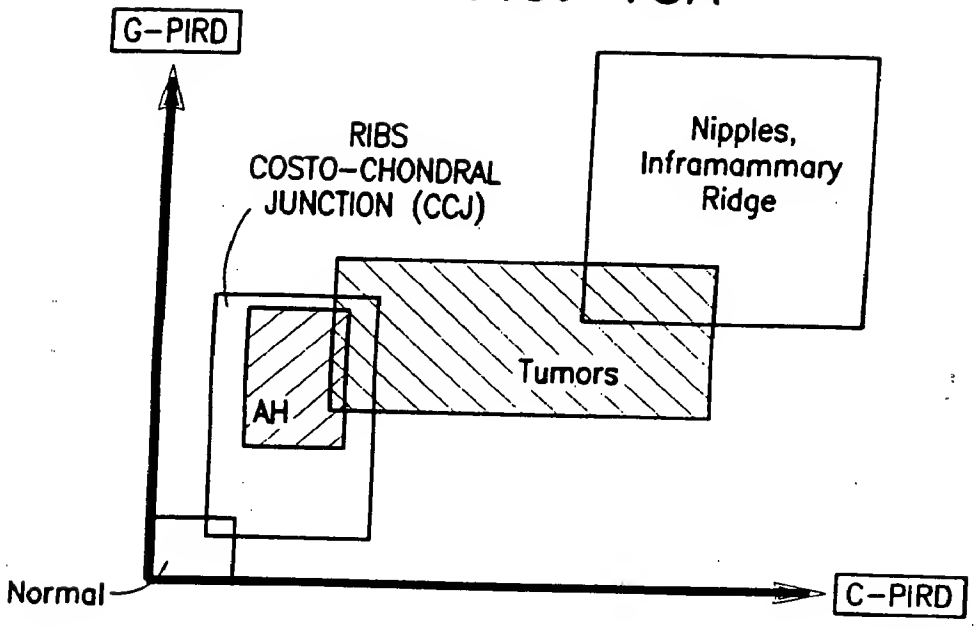
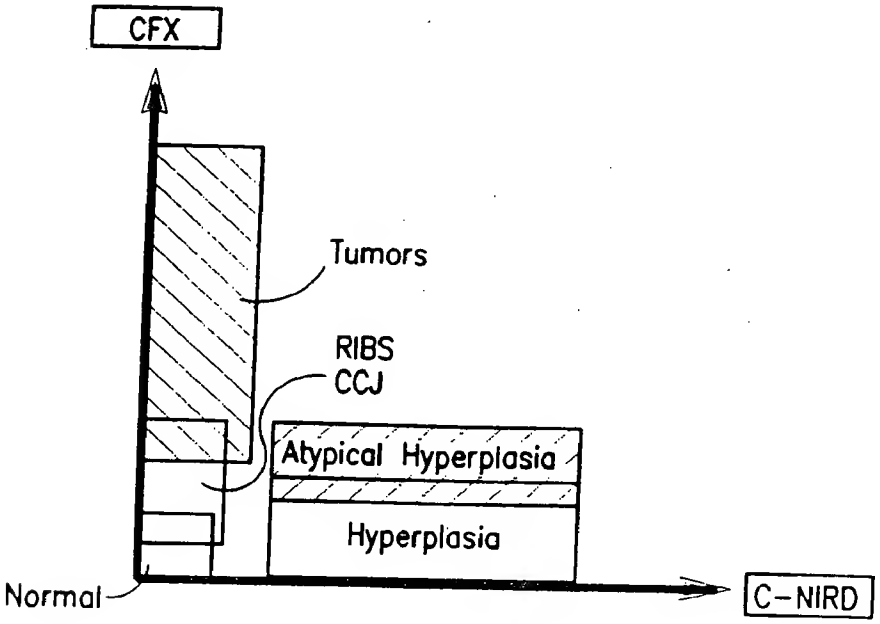


FIG. 18B



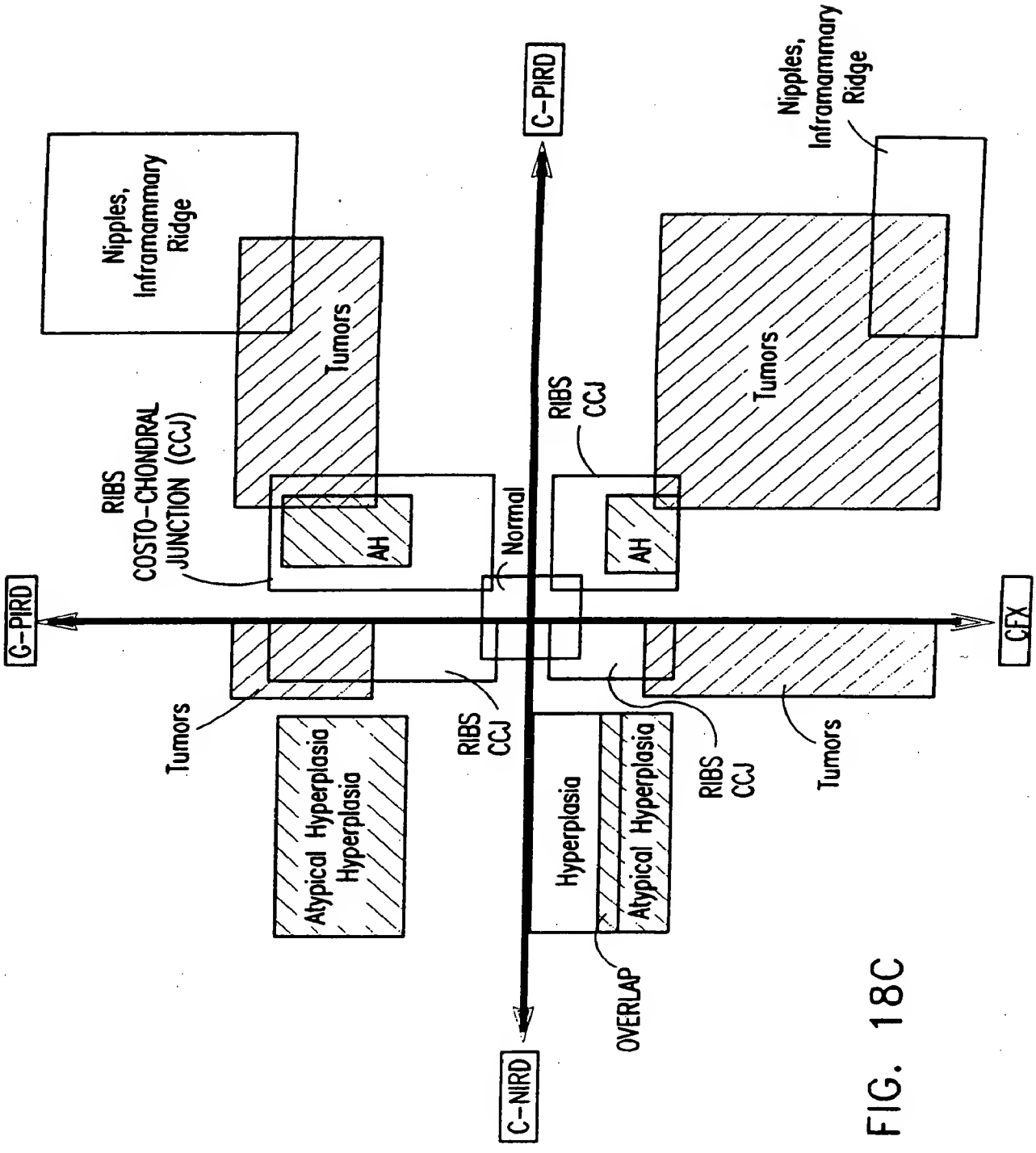

Nipples, Inframammary Ridge
Tumors
RIBS COSTO-CHONDRAL JUNCTION (CCJ)
AH
C-PIRD
Normal
RIBS CCJ
Nipples, Inframammary Ridge
Tumors
AH
C-PIRD
CFX
Tumors
Atypical Hyperplasia Hyperplasia
RIBS CCJ
Hyperplasia
Atypical Hyperplasia
RIBS CCJ
Tumors
OVERLAP
C-NIRD

FIG. 18C